

a port card;

a fabric connected to the port card through the network to send and receive fragments of packets to or from the port card, the port card, fabric and network having a plurality of modes of operation; and

~~a control mechanism connected to the transmitters and receivers which changes the assignments according to the mode, the control mechanism changing the mode and reusing the transmitters and receivers where they can be reused.~~

2. A switch as described in Claim 1 wherein the network is a gigabit network, the transmitters are gigabit transmitters and the receivers are gigabit receivers.

3. A switch as described in Claim 2 wherein the network includes a mux structure that makes the assignments between transmitters and receivers.

4. A switch as described in Claim 3 wherein the modes are 40G, 80G, 120G, 240G slow, 240G fast or 480G.

5. A switch as described in Claim 4 wherein the network can support two modes simultaneously as combined modes.

Sub 3
a1

THE JOURNAL OF THE

Subs
al

6. A switch as described in Claim 5 wherein the combined modes are 40/80, 80/120, 120/160, 160/240 fast, 240 fast/240 slow, or 240 slow/480.

7. A switch as described in Claim 6 wherein each port card includes a striper and an unstriper.

8. A switch as described in Claim 7 wherein the fabric includes a separator and an aggregator.

Subs
al

9. A switch as described in Claim 8 wherein the assignments between transmitters and receivers communicate with each other through the assignments at up to 1.3 GHz.

10. A switch as described in Claim 9 wherein each transmitter takes in 8 bits of data and 2 bits of control and serially transmits the bits of data and control to the associated receiver.

11. A switch as described in Claim 10 wherein each receiver recovers clock and data it receives by using an 8B/10B decoding protocol and provides 8 bits of data and 3 bits of control.

Subs
al

12. A method for switching fragments of packets comprising the steps of:

assigning assignments between transmitters and receivers of a network;

changing a mode of the fabrics, port cards and networks;

Subs
a changing the assignments of the transmitters and receivers according to the mode and reusing the transmitters and receivers where they can be reused; and

transferring the fragments of packets between fabrics and port cards with the transmitters and receivers of the network.

13. A method as described in Claim 12 wherein the changing the mode step includes the step of changing the mode no more than one step up or down at a time.

Subs
a 14. A method as described in Claim 13 wherein the changing of assignments step includes the step of rearranging the mux structure of the network that makes the assignments between the receivers and transmitters.

15. A method as described in Claim 14 wherein the changing the mode step includes the step of changing the mode between 40G and 80G, or 80G and 120G, or 120G and 160G or 160G and 240G slow or 240G slow 240G fast.

16. A method as described in Claim 15 wherein the assigning step includes the step of assigning assignments between the receivers and transmitters to support two modes simultaneously as combined modes.

17. A method as described in Claim 16 wherein the transferring step includes the step of transferring with the transmitter 8 bits of data and 2 bits of control serially through a mux structure to the receiver assigned to the transmitter.